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C20-AEI–106

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BOARD DIPLOMA EXAMINATION, (C-20)

JUNE/JULY—2022

DAEI – FIRST YEAR EXAMINATION

BASIC ELECTRICAL ENGINEERING

Time : 3 hours] [*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define loop and branch in circuit.

2. State the differences between active and passive circuits.

3. Define resonance in series circuit.

4. Write the formula of Impedance and power in RLC series circuit.

5. Define the term Q factor.

6. List the practical applications of heat produced due to electric current in metal.

7. State the need for cooling of transformer.

8. Define regulation of transformer.

9. Define back EMF of DC motor.

10. Classify DC machines with reference to excitation.

PART—B

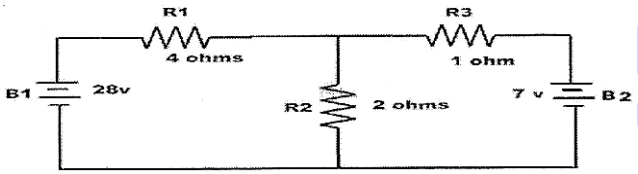
8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Calculate loop currents by using Kirchhoff's laws.



(OR)

Explain Kirchhoff's laws with examples.

12. Derive the relationship between voltage and current in pure inductive circuit.

(OR)

Differentiate between series and parallel resonance.

13. Explain the construction and working of electric kettle with diagram.

(OR)

Explain the construction and working of geyser with diagram.

14. Explain the working principle of current transformer with diagram.

(OR)

Explain the working principle of shell type transformer with diagram.

15. Explain the construction of DC Motor with diagram.

(OR)

Explain the principle of alternator with diagram.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) Its carries **ten** marks.

16. Derive the resonance frequency in parallel resonant circuit.

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